

UNIVERSITY OF HAWAII

RG:0005

Environmental Center

Office of the Director

4 October 1971

ON ENVIRONMENTAL EDUCATION

Statement for the Senate Interim Committee
on Ecology and Environment

By Doak C. Cox

Mr. Chairman and Senators:

My name is Doak C. Cox. I am Director of the University of Hawaii Environmental Center, but as usual the statement I wish to make does not reflect an institutional position of the University.

In Hawaii nei, as well as in the rest of the nation and indeed around the world, we are faced with the unwanted consequences of our unwitting manipulation of our environment--grave consequences, with vital implications as to future welfare of mankind as well as our well-being locally. As has happened often when a condition of growing severity finally becomes a matter of widespread concern, we have tended either to react before we know in what direction action should proceed or to freeze into near inaction. Both the results of ill-considered action prematurely undertaken and procrastination in initiating action have aggravated the impatience, frustration, fear, anger, chagrin, and even despair that seem to constitute the syndrome of our time.

The problem, as I see it, is that among us we have very diverse and even conflicting perceptions as to the amount of environmental deterioration that has occurred and is occurring, the cost of this deterioration particularly in non-material aspects, the extent of technological changes required to reverse or minimize further deterioration, the cost of the changes particularly in material aspects, and the relative value to us of material and non-material aspects of our well-being. The relative valuation of the material and the non-material is subjective, and no other processes but political ones are appropriate in our democratic society for determining the consensus needed for decisions as to the relative values. The diversity and conflict in our perceptions in the other respects could, however, be greatly reduced with even a modest application of objectivity. History should make it clear that to proceed with subjective judgments as to questions that could be settled objectively is wasteful economically, and dangerous environmentally and socially. Yet we seem reluctant to use the intellectual capabilities with which we are endowed to analyze our environmental problems and synthesize the consequences of possible actions before we make what must, in the end, be subjective value judgments.

The set of processes by which we cultivate our intellectual capabilities, examine our value systems, and correlate our knowledge and our values is, I consider, education. It seems important that we consider education in this way and not just as a process by which we inculcate in others, especially the young, certain capabilities and values even though we tend to separate the inculcation of knowledge and values in the young in one set of institutions from the acquisition of new knowledge and its inculcation in the somewhat more mature in other institutions, and to make less formal provision for the education of the rest of us.

Remembering this, though, let me describe some specific environmental education needs, as I see them, in relation to institutions now attempting to meet them or appropriate to meeting them.

Some of the needs have long been recognized and institutionalized--for example needs for research and professional training in the many disciplines of direct environmental importance, for example meteorology, oceanography, hydrology, ecology, sanitary engineering, public health, and economics, and the background disciplines of physics, chemistry, botany, zoology, microbiology, and so forth. Post-graduate training is needed for many of these professionals. Discipline by discipline, universities and colleges have done a pretty good job with both the research and professional training. In meeting the research needs especially they are joined by federal and state government agencies and private research organization, and in applying the results by a whole range of consulting organizations as well as government agencies. There has been considerable weaknesses, however, in integration among the traditional disciplines, and more needs to be done in the stimulation and guidance of interdisciplinary research and the broadening of the training of the specialists in the many pertinent disciplines so that they can understand and work with people with different specialized backgrounds. In particular we need to interest on a wider scale the specialists in the social sciences and the humanities in environmental problems and give them, too, broader backgrounds so that they can optimally be involved in the mutual efforts that are required.

It is still not clear to what extent we in universities should try to train environmental specialists as such, or even if such a term is appropriate--perhaps we should settle for professional environmental generalists. Obviously we need such people, but perhaps we can best get them by providing them with broader than usual foundations while training them initially in one or two specialties, and then continue their broadening through diversity in their professional experience.

The needs for technicians is also clear--operators of sewage treatment plants, sanitarians, sample collectors and analysts, and so forth. The training of some of these specialists require the equivalent of 4 years of college training, but it is possible that some of the skills could be provided in the two-year community college programs.

We also need teachers with the breadth and competence to meet the requirements for environmental education in the elementary, intermediate, and high schools, but let me discuss this need in a moment in connection with a different kind of need.

Teachers, technicians, and even professionals with advanced degrees cannot be trained on a one-time basis--not if future needs are to be met, because there is no way by which the future needs can be foreseen in any detail, and because the knowledge that must be brought to bear on them does not exist yet. Hence we need to provide for the professions and technical specialties really continuous re-education or what we call continuing education, which generally turns out to be more or less discontinuous.

Heretofore, I have been discussing needs for professional and technical education in relation to the environment--that is the education of those who will be paid, in part at least, for the use and furtherance of their environmental educations. Perhaps more important are the needs for the general education of us all, particularly of the electorate that must ultimately be responsible for our environmental policies and their success and the legislators, administrators, and jurists who represent them. These needs must initially be met, at least in a formal sense, in the elementary, intermediate, and high schools, though efforts of these schools need to be complemented by undergraduate collegiate efforts and various kinds of adult education.

Public environmental goals can be proposed, but appropriate goals are unlikely to be adopted, let alone implemented, unless the public as a whole is better informed as to the nature and importance of our environmental problems and the choices that are open to us, the tradeoffs of one form of pollution versus another, one drain of natural resources versus another, and material versus non-material benefits and costs. We can have no hope of providing for the education of the specialists we need unless the general public has been educated as to the need for them.

Let me make it plain that I am speaking of education, not indoctrination. There are two reasons for this. First indoctrination doesn't work. Trying to teach people instead of inducing people to learn is, as I hope we have learned by now, an effective way of turning them off, particularly if they find out along the way that doctrines we have taught them don't fit. Second many of the doctrines we might try to promulgate now are bound to be found false in the near future, and if there is anything clear now it is that thoughtless application of doctrinaire solutions to environmental problems is costly and damaging. The educational goal is the development of understanding, not the force-feeding of facts or doctrines.

This is perhaps the place to call attention to the peculiarities of our Hawaiian situation. We cannot rely on environmental curricula developed and canned in the temperate, continental environment of the rest of our nation. The environmental curricula used here must be based on the same natural and social laws, but in order to be useful and palatable here, must be locally tailored and the teachers also have to be trained accordingly. In spite of the fact that many necessary elements must already be present in the schools this is no small job. We simply can't expect the Department of Education to institute by next September, say, a brand new curriculum to do all that is needed to grades 1-12, although a good deal of improvement can probably be made by coordination of parts of present science and social studies programs. An

example of the difficulties, and also the rewards, is provided by the new intermediate-school science curriculum in which ecology is one of the two major elements, which has been designed in the FAST program of the Curriculum Research and Development Group, now part of the University. This curriculum is now, after 4 years of intensive work, being instituted in schools of the state, with teachers trained to match. Sister Edna Demanche has discussed the program with you very briefly, but I wish she had discussed with you further the amount of effort necessary to make such a program really successful.

At the college level, we at the University of Hawaii are concerned with general environmental education as well as professional and technical education, and we ought to be more concerned. To many of us it would appear that our environment would serve as a focus for liberal education at least as useful as any other focus. Some attempts have been made to develop such a focus, for example in the Survival Plus program of the University of Hawaii, but much still needs to be done in such programs to bring the natural sciences and particularly the applied sciences and technologies into juxtaposition with the social sciences and humanities.

I can't begin here to detail all of the environmental education efforts of the University. About 300 courses are described briefly in our Directory of Environmental Concerns, now a year out of date and due for revision. Environmental programs include not only regular credit courses, but seminars and seminar series, many of them explicitly open to the public or to professional segments of it. I believe that the Water Resources Research Center plans to make a statement of its diverse efforts which will be illustrative of the efforts of several university units.

Our Environmental Center is charged with responsibilities for coordinating educational efforts as well as research and service efforts of the University related to the environment. To date we have done very little to meet the educational coordination needs, not for lack of desire but because we've been swamped with brush-fire service needs. Our policy committee has put a high priority on the prompt address of a considerable part of our efforts to the educational needs in the University, and I expect a year from now we will not have to be so apologetic about this.

The role of the news media in environmental education has been discussed by previous speakers. I hope I am right in sensing in these media an increasing attempt to present balanced and factual information without giving up their skills at making the information attractive to readers and listeners.

We should be looking for assistance also from the many environmentally concerned community groups in educational opportunities for the general public. We do get assistance now, and I expect much of their efforts will appear more constructive when they can be convinced that we have embarked on a realistic State program for environmental quality control.

In my opinion the State now has a realistic program, but the slowness with which it has been developed has created a store of distrust among the most concerned which can be dissipated only by the demonstration of a combination of firm persistence, open discussion of rationale, and, let's face it, successful results. We should all recognize that not everything will be successful, not as judged now, and certainly not as will be judged in the future. The present program for environmental quality program must proceed on the basis of what is known now within limits set by the extent to which this knowledge is held in general among us. At the same time as we proceed with the present program we must be preparing ourselves for improvements by education.